UECM1404 Theory of Interest Tutorial 6

TUTORIAL 6

UNIVERSITI TUNKU ABDUL RAHMAN

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Q1. A 10-year 7,000 par value bond with 7% semiannual coupons is purchansed to earn a yield of 4% convertible semiannually. What is the price of the bond?

9,289.2

Q2. Brian buys a 26-year bond with a par value of 1800 and annual coupons. The bond is redeemable at par. Brian pays 2568 for the bond assuming an annual effective yield rate of i. The coupon rate is twice the yield rate. At the end of 6 years, Brian sells the bond for P, which produces the same annual effective yield rate of i for the new buyer. Calculate P.

2,426.68

Q3. Jeremy purchases a 1900 par value 12-year bond with coupons at 12% convertible semiannually which will be redeemed for R. The purchase price is 2025.67 and the present value of the redemption value is 510.61. Calculate R.

1800

Q4. Susan can buy a zero-coupon bond that will pay 7000 at the end of 11 years and is currently selling for 621.8. Instead she purchases a 5% bond with coupons payable semi-annually that will pay 7000 at the end of 9 years. If she pays X she will earn the same annual effective interest rate as the zero-coupon bond. Calculate X.

2,521.84

Q5. Laura buys two bonds at time 0. Bond X is a 5,000 par value 18-year bond with 12% annual coupons. It is bought at a price to yield an annual effective rate of 10%. Bond Y is a 18-year par value bond with 8.1% annual coupons and a face amount of F. Laura pays P for Bond Y to yield an annual effective rate of 10%. During year 10, the write-down in premium (principal adjustment) on bond X is equal to the write-up in discount (principal adjustment) on bond Y. Calculate P.

4,179.86

Q6. A 10-year bond with par value of 9000 is purchased to yield 8% convertible semi-annually. Par value equals redemption value. The interest paid portion of the first semiannually coupon is 292.97. At what nominal rate of interest(express in %) convertible semiannually are the coupons paid?

5.2528%

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Q7. John buys a bond that is due to mature at par in 7 year. It has a 800 par value and coupons at 6% convertible semiannually. John pays 870.72 to obtain a yield rate i convertible semiannually, $i > 0$. Calculate i. [Obtain i in 4 decimal places]

0.0451

Q8. A 3,000 par value 4-year bond with annual coupons of 150.0 for the first year, 225.0 for the second year, 270.0 for the third year, and 330.0 for the forth year is purchased to yield i% annually. The price of the bond is 2,982.83. Calculate i.

8.1081%